Supervisory Chemist

MS-1320-14

INTRODUCTION

This position is located in the in the Department of Forensic Sciences (DFS), Forensic Science Laboratory Division. The mission of DFS is to provide high-quality, timely, accurate, and reliable forensic science services using best practices and best available technology, focusing on unbiased science and transparency to enhance public safety and health.

This work involves supervising and coordinating the complex analysis and interpretation of the composition of molecules, physical and chemical properties, molecular structure and chemical reactions; the prediction of transformation they undergo, and the amount of matter and energy included in these analytical transformations.

POSITION CONTROL

The incumbent works under the general administrative direction of the Associate Director, Forensic Science Laboratory, who defines overall objectives to be achieved, coordinates resources, and relies on the incumbent's expertise in coordinating, and accomplishing program objectives, and in consultation, develop the deadlines, projects, and work to be done.

Work is performed independently and with wide latitude, within the framework of established policies; resolves most conflicts; occasionally coordinates work with other chemist, scientist, or managers as necessary; and interprets agency and activity test and evaluates policy on own initiative in relation to established objectives. Work is reviewed for conformance to standards, guidelines, feasibility, and effectiveness in meeting the objectives, deadlines, and expected results.

Guidelines are available, but are often inadequate, very general, or contain critical gaps; or are of only limited use for major test segments, complex problems in the assignment, and/or minor differences from past tests. Some assignments may require executing novel testing procedures or resolve problems where precedents are not applicable; or obtain needed information within tight time frames and/or cost constraints; or to develop new technical methods or criteria; or to develop proposed new policies for a major test; or supplement, explain, or adapt agency guidelines or protocol.

Many work situations are not covered by the guidelines, therefore, sound judgment is exercised when selecting, interpreting, or adapting available standards and guidelines to specific issues or subjects. Recommendations made by the incumbent are accepted as professional, scientific and technically authoritative in analytical chemistry.

DUTIES AND RESPONSIBILITIES

Performs and supervises a full range of chemical tests of samples in a laboratory which includes, but not limited to analyses of controlled substances, toxic material and other substances of importance to the Forensic Chemistry Laboratory.

Develops, adapts and implements new testing and analytical methodologies in a laboratory.

Responsible for quality control and quality assurance for the Forensic Chemistry Laboratory, which involves participation in a Proficiency Testing Program.

Participates in the evaluation of new methodologies for the detection of controlled substances, and maintains current and accurate results by providing professional opinions and/or recommendations in regards to proposing new methods, techniques, and instrumentation that will eliminate inaccuracies.

Determines and analyzes the chemical and physical properties, composition, structure, relationships, and reactions of various elements that extend beyond routine applications.

Develops, improves, and customizes products, equipment, formulas, processes, and analytical methods and compiles and analyzes test information to determine the process or whether the equipment is operating efficiently and to diagnose malfunctions or inconsistencies.

Directs, coordinates, and advises personnel in test procedures for analyzing components and physical properties of materials and confers with other scientists and chemists to conduct analyses of research projects, interpret test results, or develop nonstandard tests.

Induces change(s) in composition of substances by introducing chemical catalysts for quantitative and qualitative analysis.

Writes technical papers and detailed monthly reports and enter relevant data into scientific computer programs. Prepares standards and specifications for procedures, products, and tests and analyzes and interprets the results or computer data.

Makes necessary recommendations to improve techniques in the laboratory, and keeps up-to-date with chemical literature and the latest developments, techniques and methods and best practices.

Provides technical guidance to other analytical chemists and lower level chemists on a continuing basis to ensure quality control.

May be required to testify in court as an expert witness.

Provides the full range of supervisory services to manage and direct the work of subordinate staff and activities of assigned operations. Develops quantitative and qualitative measures for evaluating the work performance of staff. Supervises and assigns duties and responsibilities; formulates overall plans for resources; approves and disapproves leave requests; recommends job selections, promotions, incentive recognition and corrective or adverse actions; establishes work standards; and identifies developmental and training needs.

Performs other related duties as assigned.

OTHER SIGNIFICANT FACTS

Professional knowledge of a wide range of theories, principles and concepts in physical and organic chemistry, biochemistry and mathematics gained through extended professional experience in current methods of chemical research as demonstrated in publications in scientific journals, in order to perform the full range of duties involved in researching, developing, adapting and evaluating analytical methodologies used in chemistry.

Expert knowledge of instrumental analysis, such as gas and thin layer chromatography, spectrophotometry, electrophoresis, etc., in order to effectively evaluate sensitivity of procedures and precision and accuracy of the results obtained and to engage in investigative developmental work toward implementing improved analytical methods.

Professional knowledge of gas chromatography (GC), gas chromatography mass spectrometry (GC-MS), gas chromatography flame ionization detection (GC-FID), liquid chromatography mass spectrometry (LC-MS) and Fourier Transform Infrared Spectroscopy (FT-IR) to determine chemical and physical properties, composition, structure, relationships, and reactions. These analyses, resolutions or treatment of chemical/scientific problems extend beyond routine application.

Ability to communicate facts and ideas to a variety of persons and audiences both within and outside the laboratory. The ability to write memorandums, prepare reports and/or position papers on significant analytical results and submit papers for publication and circulation among other governmental agencies or other interested scientists in the discipline.

Ability to clearly and concisely answer challenges to findings.

Ability to supervise a subordinate staff.

This position's duty station will be housed within the Consolidated Forensic laboratory (CFL) which is a protection-sensitive facility. As such, incumbents of this position shall be subject to criminal background checks, background investigations, and mandatory drug and alcohol testing, as applicable.

The nature of the DFS mission necessarily involves the potential risks associated with biological or chemical hazards, including morgue functions. Although contact with these functions is intended to be minimal, the risks are nevertheless possible; training to recognize, address, and mitigate these risks is required as is dealing with potentially personally difficult topics, such as crime, death, and disease. Although there is not much risk if proper procedures are followed, some chemists could face safety or health dangers.

EXPERIENCE AND EDUCATION

Basic Requirement - Degree: physical sciences, life sciences, or engineering that included 30 semester hours in chemistry, supplemented by course work in mathematics through differential and integral calculus, and at least 6 semester hours of physics. **OR**

Combination of education and experience -- course work equivalent to a major as shown in A above, including at least 30 semester hours in chemistry, supplemented by mathematics through differential and integral calculus, and at least 6 semester hours of physics, plus appropriate experience or additional education.

In addition to the basic requirements above, the individual must also have one (1) year of specialized experience equivalent to the grade 13 level. Specialized experience is experience which is directly related to the position which has equipped the individual with mastery knowledge, skills and abilities to successfully perform the duties of the position to include analyzing and interpreting complex composition of molecules, physical and chemical properties or similar analytical chemistry work. Also, must have at least one (1) year of experience in forensic testing and associated legal practices of representing findings in court for testing of chemical substances, including controlled substances.

A Philosophical Doctorate (Ph.D.) degree in Chemistry or related field is desirable.

LICENSURE/CERTIFICATION

None – However, graduation certificate from the American Chemical Society is desirable.